Claims

What is claimed is:

1. A method for selecting a spectral mask for use with a DSL system, the method comprising:
obtaining a weighted ratio of upstream rates and downstream rates;
determining whether a cost function, based in part upon the weighted ratio, is greater than a predetermined value; and
selecting a spectral mask based in part upon the determination of whether the cost function is greater than a predetermined value.

2. The method of claim 1 wherein determining whether a cost function is greater than a predetermined value further comprises:
determining a cost function according to the relation:
cost function = 2*(dsrate(2)-dsrate(1))/dsrate(1) + (usrate(2)-usrate(1))/usrate(1),
wherein dsrate(1) is the downstream rate of a first mask, dsrate(2) is the downstream rate of a second mask, usrate(1) is the upstream rate of the first mask and usrate(2) is the upstream rate of the second mask.

3. The method of claim 1 wherein the predetermined value is zero.

4. The method of claim 2 wherein the predetermined value is zero and wherein, if the cost function is greater than zero, the second mask is selceted.

5. The method of claim 2 wherein the f is a frequency band in kHz and the upstream value of the first mask is given by the following relations for U1 in dBm/Hz:
for $0 \leq f < 4$, then U1 = -101.5;
for $4 \leq f < 25.875$, then U1 = -96+23.4*log2(f/4);
for $25.875 \leq f < 60.375$, then U1 = -32.9;
for $60.375 \leq f < 686$, then $U1 = \max\{-32.9-95\times\log_2(f/60.38), 10\times\log10[0.05683\times(f\times10^3)^{-1.5}]-3.5\}$;

for $686 \le f < 1411$, then $U1 = -103.5$;

for $1411 \le f < 1630$, then $U1 = -103.5$ peak, -113.5 average in any [f, f+1 MHz] window; and

for $1630 \le f < 12000$, then $U1 = -103.5$ peak, -115.5 average in any [f, f+1 MHz] window.

6. The method of claim 2 wherein the f is a frequency band in kHz and the downstream value of the first mask is given by the following relations for D1 in dBm/Hz:

for $0 \le f < 4$, then $D1 = -101$;

for $4 \le f < 25.875$, then $D1 = -96+20.79*\log_2(f/4)$;

for $25.875 \le f < 91$, then $D1 = -40$;

for $91 \le f < 99.2$, then $D1 = -44$;

for $99.2 \le f < 138$, then $D1 = -52$;

for $138 \le f < 353.625$, then $D1 = -40.2+0.0148*(f-138)$;

for $353.625 \le f < 552$, then $D1 = -37$;

for $552 \le f < 1012$, then $D1 = -37-36*\log_2(f/552)$;

for $1012 \le f < 1800$, then $D1 = -68.5$;

for $1800 \le f < 2290$, then $D1 = -68.5-72*\log_2(f/1800)$;

for $2290 \le f < 3093$, then $D1 = -93.500$;

for $3093 \le f < 4545$, then $D1 = -93.5$ peak, average $-40-36*\log_2(f/1104)$ in any [f, f+1 MHz] window; and

for $4545 \le f < 12000$, then $D1 = -93.5$ peak, average -113.500 in any [f, f+1 MHz] window.

7. The method of claim 2 wherein the f is a frequency band in kHz and the upstream value of the second mask is given by the following relations for U2 in dBm/Hz:

for $0 \le f < 4$, then $U2 = -101.5$;

for $4 \le f < 25.875$, then $U2 = -96+21.5\times\log_2(f/4)$;

for $25.875 \le f < 103.5$, then $U2 = -36.4$;

for $103.5 \le f < 686$, then $U2 = \max\{-36.3-95\times\log_2(f/103.5), 10\times\log10[0.05683\times(f\times10^3)^{-1.5}]-3.5\}$;

for $686 \le f < 1411$, then $U2 = -103.5$;

for $1411 \leq f < 1630$, then U2 = -103.5 peak, -113.5 average in any [f, f+1 MHz] window; and

for $1630 \leq f < 12000$, then U2 = -103.5 peak, -115.5 average in any [f, f+1 MHz] window.

8. The method of claim 2 wherein the *f* is a frequency band in kHz and the downstream value of the second mask is given by the following relations for D2 in dBm/Hz:

for $0 \leq f < 4$, then D2 = -101.5;

for $4 \leq f < 80$, then $D2 = -96+4.63*\log_2(f/4)$;

for $80 \leq f < 138$, then $D2 = -76+36*\log_2(f/80)$;

for $138 \leq f < 276.000$; then $D2 = -42.95+0.0214*f$;

for $276 \leq f < 552.000$; then D2 = -37;

for $552 \leq f < 1012$, then $D2 = -37-36*\log_2(f/552)$;

for $1012 \leq f < 1800$, then D2 = -68.5;

for $1800 \leq f < 2290$, then $D2 = -68.5-72*\log_2(f/1800)$;

for $2290 \leq f < 3093$, then D2 = -93.5;

for $3093 \leq f < 4545$, then D2 = -93.5 peak, average $-40-36*\log_2(f/1104)$ in any [f, f+1 MHz] window; and

for $4545 \leq f < 12000$, then D2 - -93.5 peak, average -113.500 in any [f, f+1 MHz] window.